



# HRI-3631

## Wireless Aggregator

— Sensor Docker





## Document version

Version	Time	Description	Remark
Rev. 1.0	2023-11-26	Preliminary version	Richard

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# 1. Description

## 1.1 Overview

[Wireless Aggregator—Sensor Docker](#) (HRI-3631) is a LoRa/LoRaWAN device for outdoor applications, It has 2 standard interface that can integrate most of the Heltec [QuickLink](#) series of sensors. Built-in 4 x 2000 mAh batteries and battery management system, allow it to be charged directly via a solar panel.

[HRI-3631](#) has the characteristics of ultra-low power consumption and long-distance transmission. Benefits from its high-strength plastic and large-capacity rechargeable battery, it can perform well in a variety of complex outdoor environments for a long time.

Depending on the frequency band, Sensor Hub for Industry are available in 3 product variants:

No.	Model	Description
1	HRI-3631-470~510	470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band
2	HRI-3631-863~870	863~870MHz working LoRa frequency, used for EU868, IN865 LPW bands.
3	HRI-3631-902~928	902~923MHz working frequency, used for AS923, US915, AU915, KR920 LPW bands.



## 1.2 Product features

- High extensibility, multi-sensor optional<sup>1</sup>.
- IP66 protection grade, Lightning protection design, ESD protection and isolation.
- Ultra-low power consumption design.
- Built-in 2000mAh x4 rechargeable battery, can be charged by DC and solar energy.
- Wireless data transmission communication radius up to 5km.
- Working condition: -40~80°C<sup>2</sup>, Working humidity: ≤90% (non-condensing).
- Power supply mode: built-in battery or external 5~24V DC power supply.
- APP scan QR code for registration, or configure via Wi-Fi, supports OTA update.

Dev Info	
CLASS :	CLASS A
OTAA/ABP :	OTAA
ADR :	ADR OFF
DR :	DR_1
Confirm :	Confirmed
DEVEUI :	2232330000111111
APPEUI :	0000000000000000
APPKEY :	88888888888888888888888888888888
Channel :	80 83
Interval :	30
Retry :	0
Power :	22
Product :	SENSORHUB_OUTDOOR_SENSORHUB
Firmware :	V1.01
Battery :	4105
Charge :	NOT CHARGING
Temperature :	28.25
Humidity :	52.64

**Submit**

<sup>1</sup> The sensor will be soldered to the adapter board at the time of purchase;

<sup>2</sup> Its own operating temperature, part of the sensor can work within a smaller range.



## 2. Specifications

### 2.1 General specification

Table 2.1 General specification

Parameters	Description
Temperature	-40 ~ 80 °C <sup>3</sup>
Humidity	0 ~ 90% RH
Microcontroller	Heltec Wireless Shell
Sensor module	Optional <sup>4</sup>
LoRaWAN channel plan	EU868/US915/AU915/ AS923/KR920/RU864/CN470
Charging voltage	7~24V
Recommned solar panel specifications	6V/1A
Max. Receiving sensitivity	-135dBm@SF12 BW=125KHz
Max. TX Power	21± 1dBm
Signal Range	5km (depending on gateway antenna and environments)
IP Rating	IP66
Battery Capacity	2000mAh x4

<sup>3</sup> PCB and battery operating temperature, more than 60 degrees will affect the life of the battery, and please pay attention to the working temperature of the sensor.

<sup>4</sup> The default solder is on the PCB, and the type of sensor to be added must be stated at the time of purchase.

## 2.2 Operating conditions

### 2.2.1 Power supply range

Table 2.2.1: Power supply range

Parameter	Min.	Typical	Max.	Unit
External power supply	7	12	24	V
Built-in battery power	3	3.7	4.1	V

### 2.2.2 Power consumption @3.7V

Table 2.2.2: Working current

Condition	Typical	Unit
Configuration	110	mA
TX @22dBm	220	mA
RX	50	mA
Deepsleep	26	μA

## 2.3 RF Characteristics

The following table gives typically sensitivity level of the HRI-363x .

Table 2.3: LoRa RF characteristics

Signal Bandwidth/[KHz]	Spreading Factor	Sensitivity/[dBm]
125	SF12	-135
125	SF10	-132
125	SF7	-125
125	SF5	-121
250	SF9	-124



## 2.4 LoRaWAN Frequency

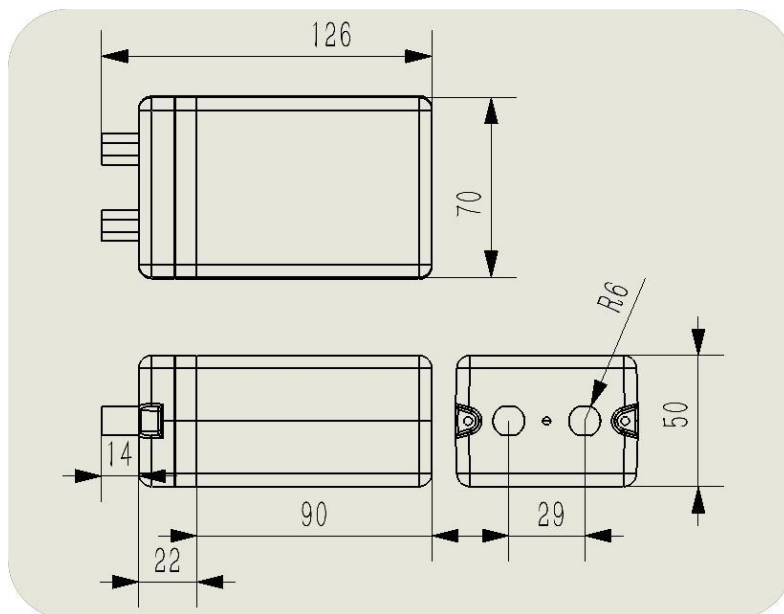
Note: **No Frequency limitation.** Except CN470, the sensor can be switched to other frequency plans at any time.

Table 2.3: LoRaWAN Frequency

Frequency Plan	Common Name	Sub-band
EU863-870	EU868	--
US902-928	US915	Sub-band from 1 to 8
AU915-928	AU915	Sub-band from 1 to 8
AS923	AS923	AS923_1, AS923_2, AS923_3, AS923_4
KR920-923	KR920	--
RU864-867	RU864	--
CN470-510	CN470	--

## 3. Hardware Resources

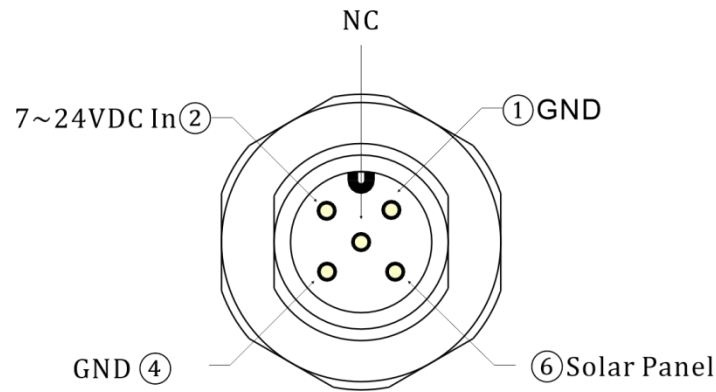
### 3.1 Physical dimensions (Unit:mm)





## 3.2 Interface Definition

### Flange seat A-DC



## 4.Resource

### 4.1Relevant resource

- [User Manual](#)
- [Related Downloads](#)
- Heltec LoRaWAN test server based on TTS V3: <https://lora.heltec.org/>

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